

Guiding focus group discussions on varietal diversification and adaptation to climate change in East Africa



Introduction

This training manual presents the objectives and tools used in focus group discussions for the survey on socio-economic and environmental factors that lead to farmers' vulnerability as part of a joint project entitled "*Linking genetic vulnerability to loss of resilience to adapt to climate change*". The survey was conducted between June – October 2013 in CCAFS benchmark sites of Nyando and Makueni in Kenya and in Hombolo district in Tanzania.

This training manual provides suggestions for field coordinators and researchers who are organizing focus group discussions in farming communities. It serves as a training manual for facilitators and allows them to familiarize themselves with the objectives of the focus groups and the tools used to collect data. The methodology was developed and tested in research areas in East Africa. The training manual provides suggestions for training but you as a trainer might need to modify the approach based on your specific situation.

Acknowledgements

Part of the diagnostic tools (Theme 2: Intraspecific diversity of sorghum, cowpea and pigeon pea at village level) used in our focus groups are derived from the work of Devra Jarvis (Bioversity International) and Dindo Campilan (CIP) as written down in '*Crop genetic diversity to reduce pests and diseases on-farm: Participatory diagnosis guidelines. Version I. Bioversity Technical Bulletin No. 12*'.

The question on 'Sources of weather information' (page 15) is copied from the CCAFS Baseline Household Level Questionnaire (CCAFS Household Baseline Survey 2010-12, Climate Change, Agriculture and Food Security).

These manuals and the methodology it describes are tested in field conditions in 2013 with the help of many people. We would like to thank the chiefs and assistant chiefs in the research sites for their cooperation and help in conducting the field work. Without their help it would have been impossible to find people willing to participate in our focus group discussions. We thank our facilitators Simon Langat, Jane Koech (Nyando), Justus Ngesu and Josephine Wambua (Wote), Soma Said and Elizabeth Mpayo (Hombolo) who were instrumental in leading the discussions and bridging language barriers.

We thank the focus group participants for their willingness to participate, their open minds and sharing their ideas freely. We thank CCAFS and their field staff in Kisumu and Wote (Joash Mango, Mildeva Azenath, Justus Ngesu and others) for facilitating our work. We also thank staff members David Kuria and Jackline Wawira from ABCIC for their help coordinating our fieldwork. And last but not least we are very grateful to Dominic Tumbo (Bioversity International) who has shared his extensive experience and has proved to be an outstanding field coordinator / facilitator during our fieldwork in Nyando and Wote.

We thank Camilla Zanzanaini for her helpful suggestions to improve the quality of this manual.

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The Seeds for Needs approach

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‘Seeds for Needs’ is a series of projects carried out in different locations across the world. It aims at building resilient and adaptable farming systems by exposing farmers to more crop varieties, increasing farmer’s knowledge about different traits and strengthening local seed systems. Scientists, local partners and farming communities are exchanging knowledge, experiences and technologies. ‘Seeds for Needs’ uses different methods and tools based on local needs but works towards one common goal: to decrease vulnerability in smallholder farming communities by increasing the intraspecific diversity of commonly used crops.

Agriculture plays an important part in East Africa’s economy. Many smallholder farmers in Kenya, Tanzania, Ethiopia, Rwanda and Uganda are increasingly aware of the negative effects that changing climatic conditions have on crop productivity and their ability to sustain their livelihoods from farming. Growing more varieties of the same crop, all with their unique combination of traits will help a farmer spread risk. It can function as a natural form of insurance against climate risks through choosing the right combination of varieties and crops for their capacity to withstand heavy rains and wind, have good yields at higher temperatures or choosing varieties which mature earlier. Farmers are actively employing varietal diversification strategies to adapt to progressing climate change.

Varieties are available in farmer’s fields and in genebanks in the form of germplasm and seeds, but accessing those varieties remain a challenge. Our research aims to answer the following questions: which seeds are able to perform well in which environment and under which conditions? Do the crops and the varieties have traits that give them the ability to adapt to climate change and at the same time meet the needs of farmers? How can we select varieties within existing sources; landraces grown on farmer’s fields elsewhere which resemble future conditions or which are stored in national genebanks and have the traits that farmers are looking for? And how can we make these seeds available to farmers in a cost-effective and sustainable way?

‘Seeds for Needs’ tries to provide answers to these questions by selecting and testing germplasm in different environmental conditions. Combining socioeconomic and (bio)climatic data, measurements of inter and intraspecific diversity, trial data and crop modeling will provide researchers and farmers with suggestions on crop varieties and their options for use in climate change adaptation.

Some of our findings

From our trials we found out that there is a high variability in crop varieties in their ability to adapt to local climatic conditions. By planting a large number of different varieties we are learning more on how climatic conditions affect a variety in terms of maturity, susceptibility to pests and diseases, morphological characteristics and more.

By surveying farmers in different locations across East Africa we are gaining insights in farmers' preferences in selecting varieties. Farmers are selecting varieties based on aroma, adaptability to marginal areas and soils, early maturity, taste and colour, market value, threshability, resistance to pest and diseases, medicinal value, cooking time and more. From our survey we found out that the different uses and traits are not homogenous but vary across gender, class and age.

In focus group discussions farmers have indicated that they are shifting to different varieties and crops to deal with the effects of climate change. They perceive that rainfall has become less predictable and droughts more frequent. Farmers are planting more sorghum and pearl millet in Tanzania because they are more drought tolerant. Farmers are looking for early maturing varieties and are experimenting with early planting.

Examples of activities in East Africa

- The creation of an atlas of crop suitability using accession location data to predict the environment under which an accession or a group of accessions can grow.
- On-farm inter and intraspecific diversity assessments. Understanding adaptation and risk management strategies of farmers to climate change through gender disaggregated household surveys and focus group discussions.
- Introducing germplasm from genebanks to farmers fields to test their suitability for climate change adaptation using a system of on-station and on-farm trials.
- Measuring crop performance in multi-location trials.
- Participatory variety selection and understanding farmers' preferences in selecting their varietal portfolio.
- Modeling selected crops to determine yield outcomes and stability under variable weather. Model household income from crops using different diversification approaches. Model the potential for pest and diseases under different climate models.
- Capacity building of local partner organizations, national agricultural research organizations, genebank managers and staff, field personnel.

Contextualizing the Project

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Bioversity International in collaboration with the African Biodiversity Conservation and Innovation Centre has conducted a survey as part of their joint project entitled “Linking genetic vulnerability to loss of resilience to adapt to climate change”. The project will produce insights on the potential of varietal diversification strategies in Climate Change Agriculture and Food Security (CCAFS) benchmark sites in Kenya and in research sites in Tanzania, allowing for comparisons between sites (“what works where and why”). The project will assess levels of diversity of different major crops in benchmark sites in the two countries, assess the current vulnerability of varieties and varietal portfolios, and identify varietal diversification needs and opportunities. Based on this information, varietal diversification strategies will be designed and tested in the field, introducing existing landrace and improved materials to farmers.

Purpose of the survey

This survey aims to gather detailed information at the household-level on farm resources, perceptions to climate change, intra specific diversity of sorghum, pigeon pea and cowpea varieties, seed sources and adaptation strategies. The same survey will be carried out in three sites in Kenya and Tanzania.

The main objective of the survey is to understand cultural knowledge and traditional farming practices that communities use to recover, mitigate and manage from agricultural risks and climate change related calamities and to examine the inter and intraspecific diversity on farms. The survey will provide information on the socio-economic and environmental factors that lead to farmers’ vulnerability, assess farmers’ perceptions on climate change and provide information on which crops farmers are using for climate change adaptation and why. Data is collected through individual household interviews and on village/regional level through the use of focus group discussions.

Objectives of the focus group discussions

1. Understand local climate change issues and adaptation strategies
2. Measure the inter and intraspecific diversity at village level
3. Collect information on farmers’ trait preferences for the three target crops
4. Collect village level data on seed sources, seed system, pest and diseases

Selection of participants and sites

The household survey will take place in two CCAFS benchmark sites: Nyando and Makueni/Kathonzweni in Kenya. As an alternative to Lushoto (CCAFS benchmark site in Tanzania) we chose to conduct our research in Hombolo in Central Tanzania because our target crops are common in this location and this was not the case for Lushoto.

Villages are selected within the sampling frame from an earlier baseline study conducted by the International Livestock Research Institute (ILRI) called ImpactLite. For more details on this study read Rufino *et al* (2013).

For each location focus group discussions were held targeting around 24 participants (12 per gender). Focus group discussions were disaggregated by gender in the afternoon, while the morning grouped men and women together. Because there are two separate ethnic groups within the CCAFS benchmark site of Nyando in Kenya we organized two separate focus group discussions. One focus group discussion was held with the Luo community and one within the community of Kipsiqis.

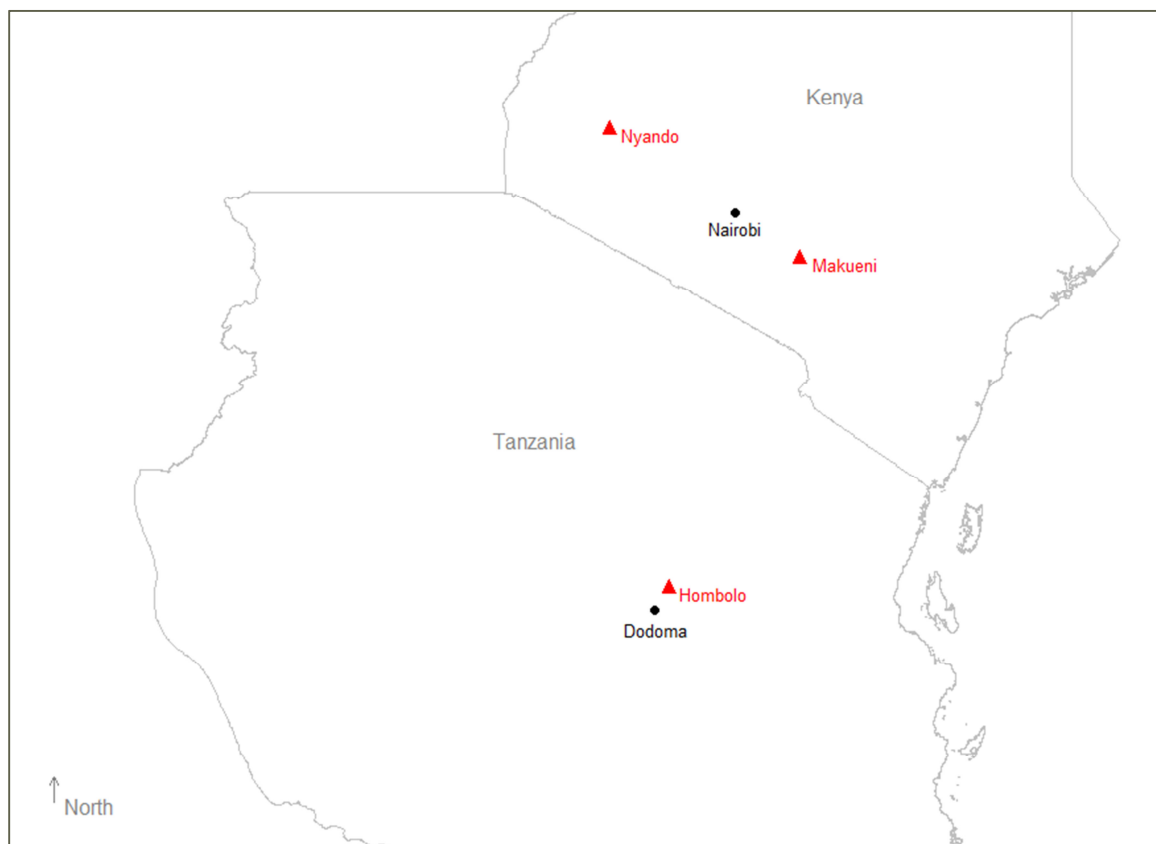


Figure 1: Research locations in Tanzania and Kenya

Guidelines

This guide outlines the structure of the session, data set and methods. A separate report will present the data collected during the focus groups and discuss the results.

Purpose of the focus group discussions

The focus group will first identify farmers' perceptions to climate change, their experience based farming knowledge and practices for adaptation to climate change.

The second part of the focus group discussion will focus on documenting landrace level management practices and experiences including seed sourcing and pests and diseases management. The survey also documents morphological characteristics and performance of each variety of the 3 target crops: sorghum, pigeon pea and cowpea.

Design of the focus group discussions

- The focus group discussion will consist of exercises to identify farmer's experience based farming knowledge and management practices as well as crop specific varieties' traits and performance.
- The focus group discussion will mobilize village elders/key-informants to select and identify the knowledgeable and reliable community representatives for both women and men groups.
- The focus group discussion team will consist of at least two members including a facilitator/interpreter, 1-2 rapporteurs and a person responsible for logistics.

Logistical considerations

- Choose a venue where the atmosphere is less formal and which is close to the field.
- Minimize distractions, such as noise from passing vehicles or mobile phones.
- Invite 24 participants and inform them about the purpose and the time it will take beforehand.

- There are separate meetings for men and women (12 each).
- Each team member has its own copy of the FGD Guide with a list of discussion themes.
- Write an outline of the meeting on a board so that each participant can see the progress of the discussion.
- Prepare supplies and materials (pens, paper, writing board, etc) in advance.
- Ask participants to bring samples of different varieties of the target crops they grow this season.
- At the start of the meeting obtain a list of participants and some basic information: full name, age, gender, village and sub-location, mobile number.
- Explain how we will use the data and how we will report back to them or the wider communities.

Facilitating the session

- Begin by introducing participants and facilitators, and then provide an overview of the session. We start by asking farmers their names and we put them in a board. If we think farmers are not able to write, to avoid embarrassment, the facilitator and rapporteur should write the names on their behalf.
- Familiarize yourself with local terminologies and names to avoid misunderstanding.
- Keep an open mind and listen. Do not push your own agenda (e.g. a new variety which you will think will solve farmers' problems). Make the farmers feel that you are truly interested in learning about what they think and do on growing different varieties.
- Be conversational. The FGD is a form of directed storytelling where you probe and pursue issues that arise during the conversation. If you feel that people feel strongly about a particular issue try to understand it more fully.
- Empathize. Try to be on equal footing with farmers in order to establish a bond and build trust.
- Never engage the farmers in a debate or pass judgment on their views or practices Even if you have more expertise.
- Remember your objective when talking to the farmers: you want to learn what they are doing, find out their problems and identify root causes.

- Ask Open questions. Avoid questions that yield 'Yes' or 'No' answers.
- Avoid leading questions. An example of a leading questions is *"Don't you think variety X is an excellent variety?"*
- Be sensitive to local norms and customs.
- Remember that a farmers' time is valuable to them. Strive to complete the session within the time period you specified.
- Don't forget to thank the participants and local leaders after completion of the session.
- Do consolidate all notes and records into a single report immediately or a day after the FGD session.

Discussion Themes

The focus group discussions consist of two parts; a morning session where climate change issues and adaptation strategies are discussed with all the participants. And an afternoon session where men and women are separated to discuss the uses and preferences in varieties of sorghum, cowpeas and pigeon peas as well as their seed system and farming practices.

Agenda

To structure the day and keep track of time we use a strict agenda with three discussion themes. For the morning session times are indicative since the topic should be addressed in an explorative manner. The facilitator guides the discussion and keeps time but it is up to the participants to provide content to the discussion and decide which topics are more important than others.

Themes	Time Indication
Introduce the project, facilitators and participants	30 min
Explain the purpose of the focus group discussion	
Introduce the different themes	
Theme 1: Climate Change Issues and adaptation strategies	
Diagramming climatic changes and perceptions	60 min
Experience based knowledge and lessons communities use to recover, mitigate and manage agricultural risks and climate change related calamities.	90 min
Access to weather information	15 min
Theme 2: Intraspecific diversity at village level	
Seed/specimen collection of target crops	10 min
Grouping together different varieties	20 min
Matrix with traits (prepare in advance) for three crops	60 min
List of varieties selected for resilience	10 min
Pest and diseases	15 min
'Network-map' of seed sources	20 min
Access to seeds / seed management	10 min
Theme 3: Farm characterization	
Seasonal calendar exercise	30 – 40 min
Closing session	

Theme 1: Climate change issues and adaptation strategies

We will use a matrix to describe for each factor/issue the change that was noticed by farmers and the direct consequences that farmers face. The matrix will capture their perceptions and adaptation strategies.

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Issues	Event	Change	Effect	Impact	Vulnerability	Adaptation strategies	Support
Example from Kenya British colonial era (1895-1963) Kenyatta regime era (1963-1978) Moi regime era (1978-2002) Kibaki regime era (2002-2013)	<i>Relate event to a certain point in time. A historical event</i>	<i>What has changed? Major calamities (and their local names)</i>	<i>How has it changed? Increase – decrease, positive or negative?</i>	<i>What effect does it have on farming and livelihoods?</i>	<i>What are the consequences of these effects?</i>	<i>Actions community members are taking to overcome challenges and mitigate and avoid risks.</i>	<i>What kind of support is needed (external help) or should the community be taking?</i>
Weather patterns and climate							
Overall rainfall pattern							
Amount of rain							
Timing of rain (later or earlier start)							
Temperature							
Flooding (more frequent?)							
Drought (more frequent?)							
Wind (Stronger winds, direction changed?)							
Land use and agricultural practices							
e.g. Expansion of maize production, Land restoration and reforestation, Landscape fragmentation, Restriction of pesticide use, access to indigenous lands							

Theme 1: Climate change issues and adaptation strategies

Issues	Event	Change	Effect	Impact	Vulnerability	Adaptation strategies	Support
Agrobiodiversity							
3.1. Crop species (general): e.g. Introduction, replacement or abandonment of crop species, change in the importance of crop type (e.g. roots and tubers, trees, legumes).							
3.2 Varieties: e.g. Introduction, replacement and abandonment of varieties, access to and source of new varieties, loss of varieties							
Seed sources and availability							
Availability of seeds Quality of seed							
Pests and diseases							
e.g. occurrence, types, management practices							
Patterns of regeneration and enrichment of productive resources							
e.g. soil, pastures, rain/river water, firewood, collecting honey etc.							

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In the case of Kenya we recalled all the different political regimes that represent eras in Kenya's history: a framework most people are familiar with.

- Figure 2: Event matrix describing the changes, effects, impacts, vulnerabilities, adaptation strategies and support across several communities (Nyando, 19 June 2013)



Level of access to weather information

Ask participants whether they have received weather information during the past year, specify from which sources and what type of weather information they received. Use the table below to document their answers. Note down how many people in each empty field.

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		A	B	C	D	E
	Type of forecasting	Forecast of drought, flood, frost or other extreme event	Forecast of pest or disease outbreak	Forecast of the start of the rains	Forecast of the weather for the following 2-3 months	Forecast of the weather for today, 24 hours and/or next 3 days
Source of weather information						
01	Radio					
02	Television					
03	Government, extension or veterinary officers					
04	NGO project officers					
05	Friends, relatives or neighbours					
06	Meteorological offices					
07	Teachers in local schools					
08	Newspaper					
09	Trad.forecaster/indigenous knowledge					
10	Your own observations					
11	Local group/gatherings/meetings					
12	Religious faith					
13	Cell phones					
14	Internet					
15	Other					

Adapted from the CCAFS Baseline Household Level Questionnaire, p. 16

Theme 2: Intraspecific diversity of target crops at village level

This methodology was derived from Jarvis and Campilan: 'Crop genetic diversity to reduce pests and diseases on-farm'. Participatory diagnosis guidelines. Version I (Bioversity Technical Bulletin no. 12)

Variety grouping and trait preferences

Before the meeting, we ask each participant to bring seeds of the different varieties of sorghum, cowpeas and pigeon peas. If possible provide bags to participants up front. In this session we will group the variety they have brought on a big table and discuss how they use each variety.

The different steps of this activity are described below:

Step 1:

Group these samples together according to variety, and put a label on each. If you see that another participant has brought a variety similar to yours, group them together.

While they are busy arranging their specimens, you can hand out pens and small pieces of paper. Same caution here if we think farmers are unable to write.

Step 2:

If you call this variety by a name that is different from the label provided by other participants, also write the name you use on a sheet of paper and put it next to the group of samples.

Give time for the participants to examine all samples being displayed. Encourage them to discuss with other participants in order to agree on how to group the samples according to variety, and also on possible multiple names given to the same variety.

Figure 3: Variety grouping of Sorghum (Nyando, 19 June 2013)



Step 3:

Ask for one participant to volunteer for each of these varieties and tell us whether the variety is local or indigenous or introduced/modern/hybrid. If you have questions or disagree with the volunteer, please feel free to speak.

The volunteer states whether his/her assigned variety is local or introduced/modern. Give time for questions/discussions until there is consensus on how to classify the variety. Then put another label on the sample, using different colored papers for local or introduced/modern.

Step 4:

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Now we are interested in knowing how to distinguish varieties from each other. If there are enough participants the task is divided into groups: sorghum, pigeon pea and cowpea. Write down the criteria/traits they use to compare varieties on a large sheet of paper.

Use the following example:

Crop	Traits (<i>incl morphological characteristics</i>)	Rank
Sorghum		
Pigeon pea		
Cowpea		

Step 5:

Through ranking we select the 6 most important traits for each crop. Then, we will ask the participants to score the varieties according to these criteria. For example drought-tolerance: how would you score this for each variety? Give a number between 1 and 5 where 1 means it scores badly for this particular trait and 5 means it scores really well. The last column should be a total score for the variety, from 1 to 5 as above.

Construct a matrix on a large sheet of paper. On the first column list the names of varieties. Then write the traits mentioned by the farmers. Give time for the whole group to come to a consensus on the traits. If there is not a consensus that describe a particular variety list the variety twice as xxx variety A and XXX variety B in two separate rows and fill in the different scores separately.

Scores:

- 1 = Poor performance
- 2 = Reasonable performance
- 3 = Neutral
- 4 = Good performance
- 5 = Very good performance

Draw the table below on a flipchart.

Variety name	Trait 1	Trait 2	Trait 3	Trait 4	Trait 5	Trait 6

Step 6:

Do you know other varieties grown in your village/community but for which we do not have samples right here? What are the names of these?

Add names on the bottom of the paper under heading 'Other varieties currently grown' and ask to score for the traits identified above.

Step 7:

For each variety specify whether there are notable pest and diseases or have a high tolerance or resistance to pest and disease attacks. Include in the table above (page 17).

Let people discuss and reach some sort of consensus before writing down the answers in the fifth column of the table below. Use another flipchart.

Step 8:

Ask how well each variety performs under the current climatic conditions.

Let people discuss and reach some sort of consensus before writing down the answers in the sixth column of the table below.

Crops	Current varieties	Use	Modern variety / landrace	Notable pest and diseases	Performance under Current Climate (score)

Step 9:

Are there particular people in your village who are known to have many different varieties? Who are they?

Write down names and the location of their homes. They can be used as key-informants later on.

Step 10:

Do you know other varieties in your village that aren't cultivated anymore? For what reasons are they no longer cultivated?

Page | 19 Prepare another flipchart with the table below and write down names and reasons for abandoning cultivation. Probe on reasons for losing varieties: environmental degradation, climate variability, noxious pests or diseases, poor market demand, lack of seeds, replacement with other crops/varieties, etc.

Crop variety	How many years ago	Reasons for abandoning/loss

Seed management practices

We will ask the participants a series of questions relating to the (informal) seed system.

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- Now for each of the varieties which are on the table, tell us where you obtained this seed from (go around the group. From whom? *Also probe for within or outside the community, distance?*

- relatives (family members)
- friends and neighbors
- government
- shops and open market
- Agrovet
- others (specify)

- Write down how you obtained those seeds below the arrow pointing towards the seed source

- purchased,
- given as gift,
- exchange
- others (specify)

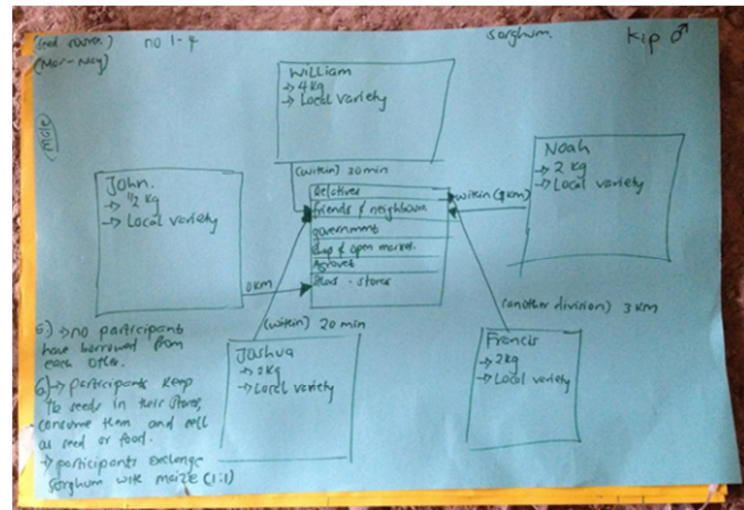


Figure 4: Seed Exchange mapping (Nyando, 18 June 2013)

- Modern varieties or landrace?
- What are some of the limitations of obtaining seeds?
- How often do you change seeds? For example you grow 3 varieties now, when do you change to another variety? *Note down reasons on a flip chart sheet.*
- What post-harvest methods do you use to conserve seeds/planting materials? If needed specify for each target crop. For example: *Treat seeds with pesticides or other products (specify), Specific seeds preparation for storage practices (list practice), Specific seed container (list type of container), Specific storage location (list location)*
- Do you know anyone else in the community sell/distribute/exchange seeds to farmers within the community?

Give participants adequate time to complete each step. If possible, use a very large sheet to make it easier for participants to write and draw directly on these.

Theme 3: Farm Characterization (village level)

We want to compile a multi-level seasonal calendar which will provide us with community level information on crops grown in the community. First we ask the participants to list the major crops they know and are grown in the community.

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Listing of major crops in the community

- Major crops planted in long rain season
- Major crops planted in short rain season
- Unseasonal crops (it can plant any time)
- Major perennial crops
- Major vegetable crops
- Major fruits crops
- Major crops in wild conditions.
- Major cash crops

Five-level seasonal calendar

The facilitator will have 3 flipcharts prepared with the outline of the seasonal calendar. The two rapporteurs have several pages printed on which they can copy the information. The seasonal calendar starts at a logical time. This is not necessarily January but should be aligned with the start of the season (when people start preparing their land).

We proceed with filling the seasonal calendars on five levels (a,b,c, d and e).

a. Rainy season(s)

b. Climate events (common occurrence)

- 1=timing of hazards, disasters, cyclones
- 2=droughts
- 3=floods
- 4=common occurrence of pest and diseases

c. Farm practices for major crops/target crops

- 1=preparing land
- 2=planting/sow
- 3=weeding
- 4=fertilizing

5=pesticides

6=harvesting

7=threshing

8=cleaning

9=marketing

d. Food security

1=Sources of food mainly off-farm (purchase)

2=Sources of food mainly on-farm

3=Shortage to feed the family

e. Off-farm practices (specify according to common practices)

For example soil & water conservation activities, collecting honey, seasonal work outside of the farm. Times of migration, holidays and festivals.

Seasonal calendar

[illegible]

Closing session

Both the women and the men's group come together for a plenary session. Both groups report back the results. Provide a summary of our findings for each theme and try to capture a few statements. Explain the purpose of the household questionnaire and the planning for the field visits (when will the team come back for the individual interviews).

Final note

Time management is of vital importance for a successful focus group discussion. In all of our focus groups we ran out of time. This is not uncommon for focus group discussions; there are always last minute arrangements that have to be made and it is difficult to get everyone in the same room on time. In our case the agenda we kept proved to be too much for a one day session. Ideally we would have divided the activities over a two day period to allow more time for deeper discussions.

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We deliver scientific evidence, management practices and policy options to use and safeguard agricultural biodiversity to attain sustainable global food and nutrition security. We work with partners in low-income countries in different regions where agricultural biodiversity can contribute to improved nutrition, resilience, and climate change adaptation.

Bioversity International is a member of the CGIAR Consortium – a global research partnership for a food secure future www.bioversityinternational.org

This work was undertaken as part of the **CGIAR Research Program on Climate Change Agriculture and Food Security (CCAFS)**, which is a strategic partnership of CGIAR and Future Earth. The views expressed in this document cannot be taken to reflect the official opinions of CGIAR or Future Earth.

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT). CCAFS brings together the world's best researchers in agricultural science, development research, climate science and Earth System science, to identify and address the most important interactions, synergies and tradeoffs between climate change, agriculture and food security www.ccafs.cgiar.org

The **African Biodiversity Conservation and Innovations Centre (ABCIC)** is a Nairobi-based non-governmental organization which promotes and facilitates the adoption of innovations and technologies for agrobiodiversity conservation and utilization by institutions and rural communities in sub-Saharan Africa for sustenance of livelihoods, income generation, food security and environmental conservation www.abcic.org



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**Climate Change,
Agriculture and
Food Security**



Bioversity International is a member of the CGIAR Consortium.
CGIAR is a global research partnership for a food secure future.
www.cgiar.org

ISBN 978-92-9255-002-8

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